

Claims

- [1] A light emitting device comprising:
a light emitting chip; and
a phosphor through which a first light emitted from the light emitting chip passes,
wherein the phosphor comprises a silicate phosphor emitting a second light having a first centered emission peak using the first light and a sulfide phosphor emitting a third light having a second centered emission peak using the first light.
- [2] The light emitting device according to claim 1, wherein the first centered emission peak is in a range of 550 - 600 nm.
- [3] The light emitting device according to claim 1, wherein the second centered emission peak is in a range of 500 - 550 nm.
- [4] The light emitting device according to claim 1, wherein the silicate phosphor has a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+} x (0 < x \leq 1)$.
- [5] The light emitting device according to claim 1, wherein the sulfide phosphor has a chemical formula of $\text{Sr}_{1-x}\text{Ga}_2\text{S}_4:\text{Eu}^{2+} x (0.001 \leq x \leq 1)$.
- [6] The light emitting device according to claim 1, wherein the silicate phosphor and the sulfide phosphor exist at a ratio of 1 : 1 to 1 : 9.
- [7] The light emitting device according to claim 1, wherein the phosphor has a particle size of $d_{90} \leq 20 \mu\text{m}$, $5 \leq d_{50} \leq 10 \mu\text{m}$.
- [8] The light emitting device according to claim 1, wherein the light emitting chip emits blue light.
- [9] The light emitting device according to claim 1, wherein the phosphor is molded in a periphery of the light emitting chip or on the light emitting chip.
- [10] The light emitting device according to claim 1, wherein the phosphor is manufactured by mixing the phosphor with a light transmitting resin.
- [11] The light emitting device according to claim 10, wherein the resin is an epoxy resin or a silicon resin.
- [12] The light emitting device according to claim 1, wherein the silicate phosphor is a yellow series and the sulfide phosphor is a green series.
- [13] A phosphor of a light emitting device, comprising:
a silicate phosphor excited by a light generated by a light emitting chip and having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+} x (0 < x \leq 1)$; and
a sulfide phosphor excited by the light generated by the light emitting chip and having a chemical formula of $\text{Sr}_{1-x}\text{Ga}_2\text{S}_4:\text{Eu}^{2+} x (0.001 \leq x \leq 1)$.
- [14] A light emitting device comprising:
a substrate;

a light emitting chip emitting a light;
 a connection part for electrically connecting the substrate with the light emitting chip;
 a phosphor encapsulating the light emitting chip and through which the light passes;
 a silicate phosphor contained in the phosphor and having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+} x (0 < x \leq 1)$; and
 a sulfide phosphor contained in the phosphor and having a chemical formula of $\text{Sr}_{1-x}\text{Ga}_2\text{S}_4:\text{Eu}^{2+} x (0.001 \leq x \leq 1)$.

[15] The light emitting device according to claim 14, wherein when the light emitting device is a top view type, the silicate phosphor and the sulfide phosphor exist at a ratio of 1 : 2 to 1 : 3.

[16] The light emitting device according to claim 14, wherein when the light emitting device is a side view type, the silicate phosphor and the sulfide phosphor exist at a ratio of 1 : 3 to 1 : 4.

[17] A light emitting device comprising:
 a leadframe;
 a light emitting chip emitting a light;
 a connection part for electrically connecting the leadframe with the light emitting chip;
 a phosphor encapsulating and molding the light emitting chip and through which the light passes;
 a silicate phosphor contained in the phosphor and having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+} x (0 < x \leq 1)$; and
 a sulfide phosphor contained in the phosphor and having a chemical formula of $\text{Sr}_{1-x}\text{Ga}_2\text{S}_4:\text{Eu}^{2+} x (0.001 \leq x \leq 1)$.

[18] A light emitting device comprising:
 a light emitting chip emitting a light; and
 a resin-based phosphor through which the light emitting from the light emitting chip passes;
 wherein the phosphor comprises a yellow silicate phosphor exciting a second light having a first centered emission peak using the first light and a green sulfide phosphor exciting a third light having a second centered emission peak using the first light, and the green sulfide phosphor and the yellow silicate phosphor exist at a ratio of 1 : 2 to 1 : 5.

[19] The light emitting device according to claim 18, wherein the phosphor is contained at a ratio of 15 - 30 wt% with respect to the base so as to emit white light.

- [20] The light emitting device according to claim 18, wherein the phosphor is contained at a ratio of 5 - 15 wt% with respect to the base so as to emit bluish light.